Physico-Chemical Studies of the Polymerization of Rice Oil

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p-dichlorbenzene 68% *p*-chlornitrobenzene 73%

m-chlornitrobenzene 67% *o*-chlornitrobenzene 30%

p-chloranisol 26% *o*-chloranisol 25%

In toluene at 100°C for 5 hrs.

From *p*-, *o*-anisol-diazoniumchloride.

p-chloranisol 60% *o*-chloranisol 60%

In benzene at 80°C for 5 hrs.

From *α*-, *β*-naphthalene-diazoniumchloride,

α-chlornaphthalene 77% *β*-chlornaphthalene 78%

In benzene at 80°C for 5 hrs.

From the diazoniumchloride of benzidine and *o*-tolidine.

4-, 4′-dichlordiphenyl 65% 3-, 3′-dimethyl-4-, 4′-dichlordiphenyl 70%

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28. Physico-Chemical Studies of the Polymerization of Rice Oil.

Itsuro Yamakita and *Sadatoshi Tomioka.*

The studies on the polymerization of rice oil performed up to date is, in general, that of low acid value (below 46.5). So the authors set to work on higher acid value oil, most frequently met with in the practical case, in order to find the way of utilizing it most effectively from fhe economical standpoint.

In our experiments, a winter rice oil (acid valve, saponification value and iodine value being 106.0, 182.0, and 108.6 respectively) was used. The polymerization procedure was carried out at 300°C in hydrogen atmosphere and the change of viscosity, mean molecular weight, and iodine value of the sample were measured. The results are formulated as follow:

1) The relation between viscosity increased and concentration of the polymerized oil in benzene solution, measured at 25°C, is given by the equation: $\eta_{sp}=k_0C_v+k_1C_v^2$, where C_v is grams of the solute in 100 cc. benzene solution, η_{sp} is the specific viscosity, k_0 and k_1 are constants. k_0 is calculated in particular from the value of η_{sp}/C_v at $C_v\rightarrow 0$, called "intrinsic viscosity" and independent of the concentration of solution, (k_0 will be used conveniently in stead of η_{sp} hereafter).

2) The relation between the change magnitude of k_0 ihcrease, K say, and that of iodine value decrease by the polymerization progress, is given by the equation: $\log(K-C)=b\log I+a$, where a, b, and c are constants.

3) The relation between K and the magnitude of increase of mean molecular weight, M, determined by Rast's camphor method at the corresponding polymerization stage, is given by the equation: $K=3.44\times10^{-3}M$.

4) The rate of the change of K value to the time of polymerization, t, is given

by the equation: $\frac{dk}{dt}=a(R-K)^2$, where a and R are constants.

29. Studies on the Purification of Rice Oil.

Itsuro Yamakita and *Yujiro Fujii.*

The purification of rice oil, especially, the removal of colored substances from the crude oil, is not easy, compared with other vegetable oil.

Though several decoloration methods have been proposed, no clear explanation has been given yet why rice oil has such particular property.

So the authors tried to resolve this question. In this report, some results, obtained from the physico-chemical stand pointe, concerning the decolaration of the crude rice oil, are described.

1) First of all, as the new neasure showing quantitatively the change of coloration of rice oil, the specific transmitting light power through the oil, determined by a colorimeter, was adopted.

2) It was confirmed that the decoloration effect of activated acid clay to the crude rice oil is very small.

3) It was found that the emulsive washing of the crude oil at room temperature by dilute aqueous solution of acid or salt, which has no apprehension to color the oil secondarily, (for ex. hydrochloric acid, acetic acid, sodium citrate, citric acid, magnesium chloride etc.) promotes the decoloratin effect of activated acid clay. From this fact, it is supposed that the impurities which hinder the decoloration effect of the adsorbent in the crude oil are removed by the pretreatment above mentioned.

4) The increase of coloration of decolored rice oil having high acid value (52.7) produced by contacting it with iron pieces (which has the significance corresponding to the practical case, namely the manufacture of the oil by iron machinery and the storage of the oil in iron vessels) was measured, and it was recognised that the coloration is decolored easily by acid treatment alone, but not by the adsorption treatment of activated acid clay alone.

30. Studies on the Synthesis of BHC (Benzene Hexachloride) (III)

Research for the photochemical Reaction between Benzene and Chlorine in Carbon Tetrachloride Solution. 2.
Mechanism of the Formation of *o*-Octachlorocyclohexane.

Toshihiko Oiwa, Ryoichi Yamada, Michiko Inouye and *Minoru Ohno,*